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WHAT IS CLAIMED IS:

1. A method of preparing porous materials,
comprising the steps of:

5 (A) making a solution containing silicon and
surfactant be in contact with a substrate having
alignment control ability; and
(B) drying said substrate made in contact
with the solution to remove the solvents
contained in said solution.

10 2. A method according to claim 1, wherein
silicon is contained in said solution in a state
of compound.

15 3. A method according to claim 1 or 2,
wherein silicon is contained in said solution as
silicon alkoxides.

4. A method of preparing porous materials,
20 comprising the steps of:

coating a substrate having alignment control
ability with a surfactant solution containing
silicon alkoxide; and
drying said substrate.

25 5. A method according to claim 4, wherein
patterned mesostructured silica with uniaxially

aligned channel structure is formed by a step of coating a desired position of a substrate having alignment control ability with a surfactant solution containing silicon alkoxide in a desired shape and a step of drying said substrate.

6. A method according to claim 4 or 5, wherein said substrate with alignment control ability is a silicon single crystal substrate having (110) orientation.

7. A method according to claim 4 or 5, wherein said substrate is a substrate whose surface is coated with a polymer compound film subjected to a rubbing process.

8. A method according to claim 4 or 5, wherein said substrate is a substrate whose surface is coated with a Langmuir-Blodgett film of polymer compound.

9. A method according to any one of claims 4 to 8, wherein the substrate is coated with the surfactant solution by a pen lithography method.

10. A method according to any one of claims

4 to 8, wherein the substrate is coated with the surfactant solution by an ink jet method.

11. A method according to any one of claims 4 to 8, wherein the substrate is coated with the surfactant solution by a dip coating method.

12. A method of preparing porous materials, comprising the steps of:

10 coating a substrate having alignment control ability with a solution of surfactant containing silicon alkoxides;

drying said substrate; and
removing the surfactant.

15 13. A method according to claim 12, wherein said step of coating said substrate with said solution is a step of selectively coating a desired position of said substrate with said 20 solution in a desired shape.

14. A method according to claim 12 or 13, wherein said substrate with alignment control ability is a silicon single crystal substrate 25 having (110) orientation.

15. A method according to claim 12 or 13,

Sub A
Coat

1000 900 800 700 600 500 400 300 200 100

wherein said substrate is a substrate whose surface is coated with a polymer compound film subjected to a rubbing process.

16. A method according to any one of claims 12 or 13, wherein said substrate is a substrate whose surface is coated with a Langmuir-Blodgett film of polymer compound.

10 17. A method according to any one of claims 12 to 16, wherein said substrate is coated with said surfactant solution by a pen lithography method.

15 18. A method according to any one of claims 12 to 16, wherein said substrate is coated with said surfactant solution by an ink jet method.

19. A method according to any one of claims 20 12 to 16, wherein said substrate is coated with said surfactant solution by a dip coating method.

20. A method of preparing porous materials, comprising the steps of:

25 (A) attaching a solution containing silicon and surfactant to a substrate having alignment control ability; and

(B) removing the solvents contained in said solution attached to said substrate.

21. A method according to claim 20, wherein silicon is contained in said solution in the form of compound.

22. A method according to claim 20, wherein silicon is contained in said solution as silicon alkoxides.

all
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